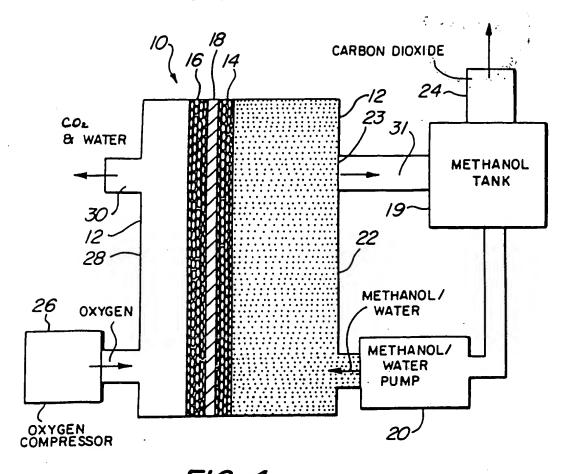
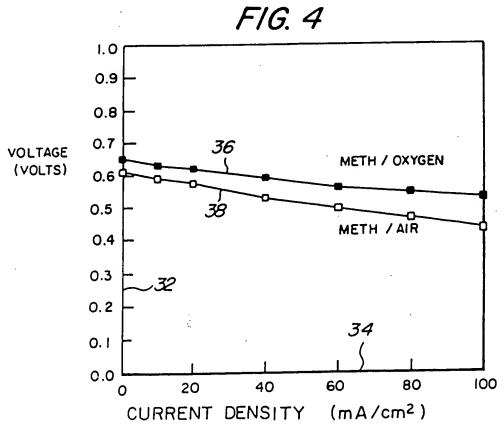
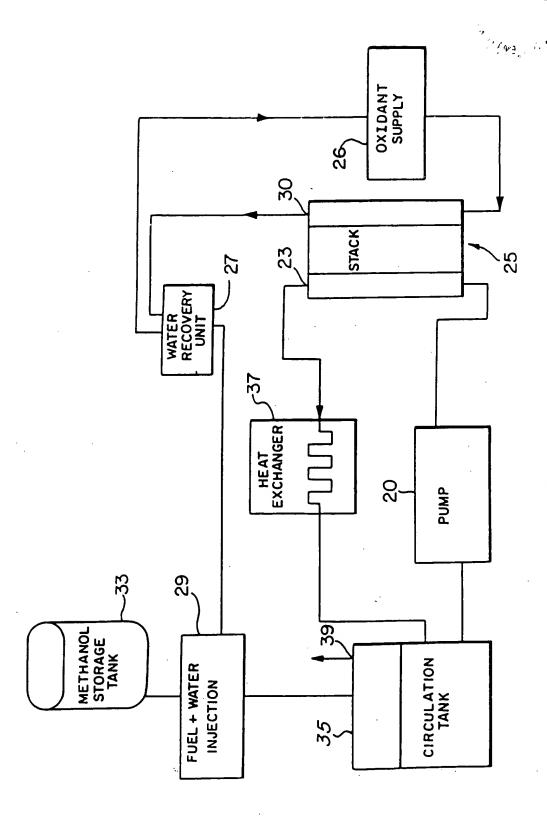
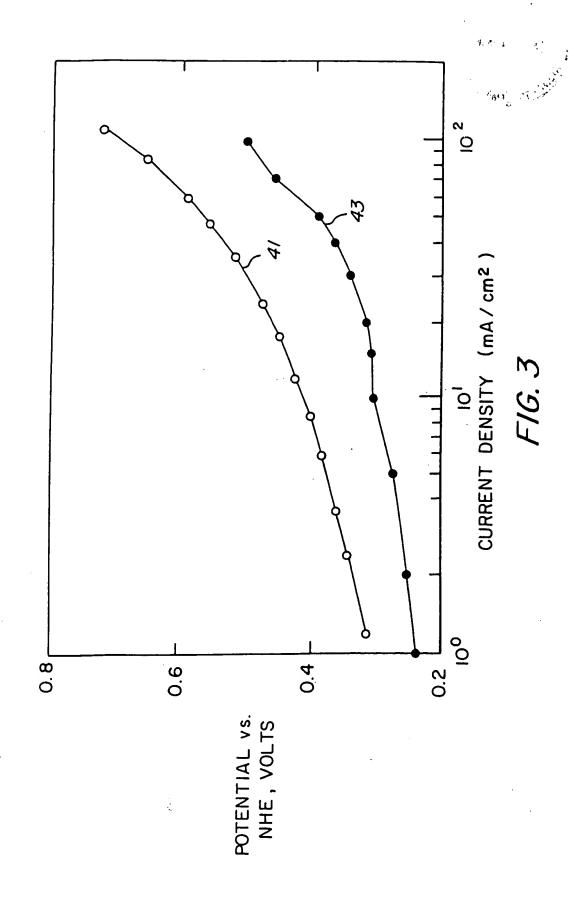
FIG. 1



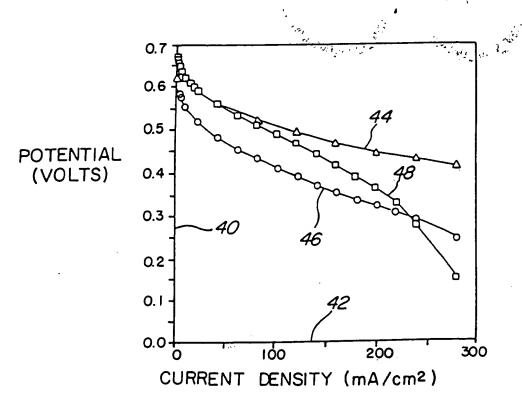




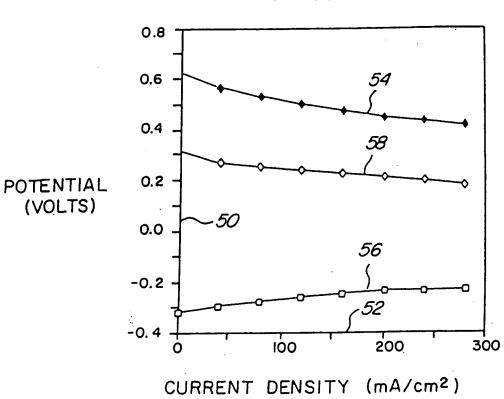
F16.2







F/G. 6



,302

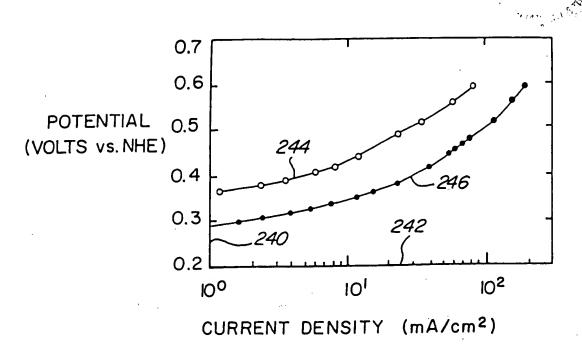
IMMERSE THE CARBON ELECTRODE STRUCTURE IN 1% SOLUTION OF NAFION IN METHANOL FOR ABOUT 5 MINUTES TO ACHIEVE IMPREGNATION OF THE NAFION INTO THE ELECTRODE TO A LOADING OF O.1 – O.5 mg/cm<sup>2</sup>.

304

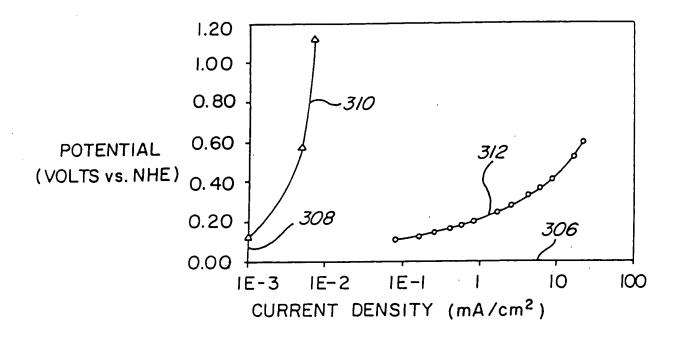
REMOVE ELECTRODE FROM SOLUTION AND DRY IN VACUUM.

F1G. 7





F/G. 8



-200

PREPARE CARBON ELECTRODE STRUCTURES FROM A MIXTURE OF 200m2/g HIGH SURFACE AREA CARBON PARTICLES AND TEFLON BINDER (15 %) APPLIED TO A FIBER-BASE CARBON PAPER.

-202

PREPARE A BATH OF HYDROGEN
HEXACHLOROPALTINATE AND POTASSIUM
PENTACHLOROAQUORUTHENIUM WITH A METAL
ION CONCENTRATION IN THE RANGE OF QOI-QO5M
DISSOLVED IN 1M SULFURIC ACID.

-204

ADD PERFLUOROOCTANESULFONIC ACID TO BATH WITH A CONCENTRATION IN THE RANGE OF 0.1-1.0g1-1

-206

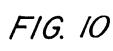
POSITION THE CARBON ELECTRODE IN THE BATH ALONG WITH A PLATINUM ANODE.

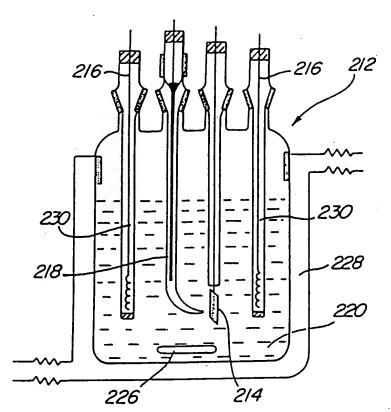
208

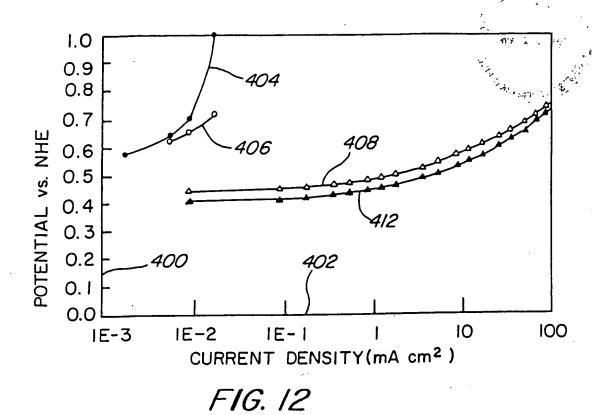
APPLY A VOLTAGE BETWEEN THE CARBON ELECTRODE AND THE ANODE FOR ABOUT 5-10 MINUTES TO ACHIEVE ELECTRODEPOSITION OF PLATINUM-RUTHENIUM TO A LOADING OF ABOUT 5 mg/cm<sup>2</sup>.

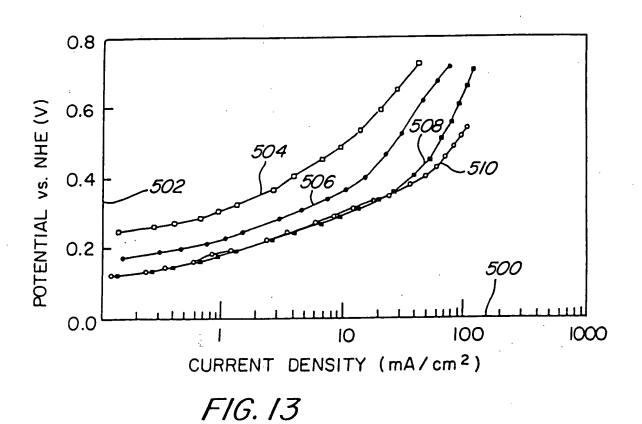
210

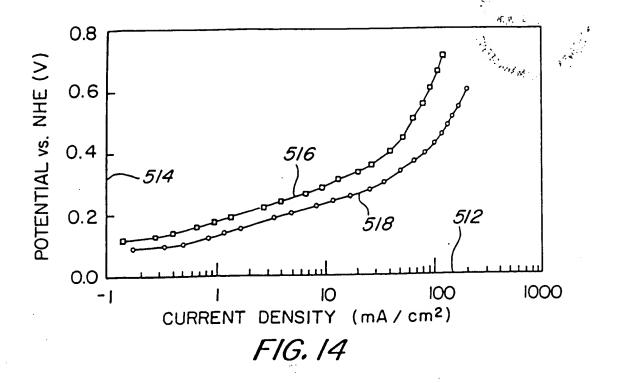
REMOVE CARBON ELECTRODES FROM BATH AND WASH IN DEIONIZED WATER.

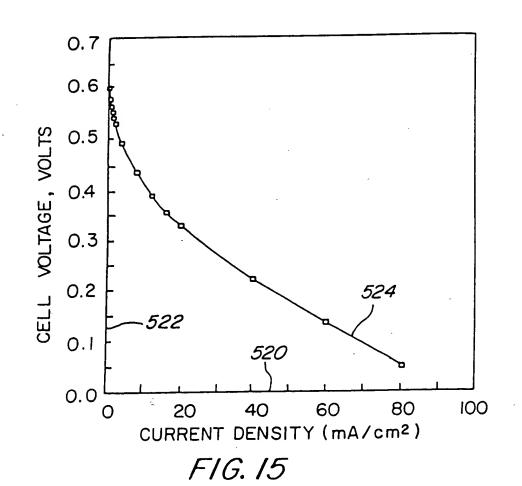


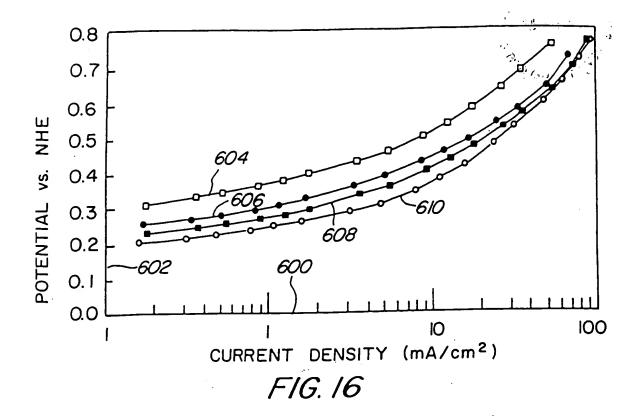


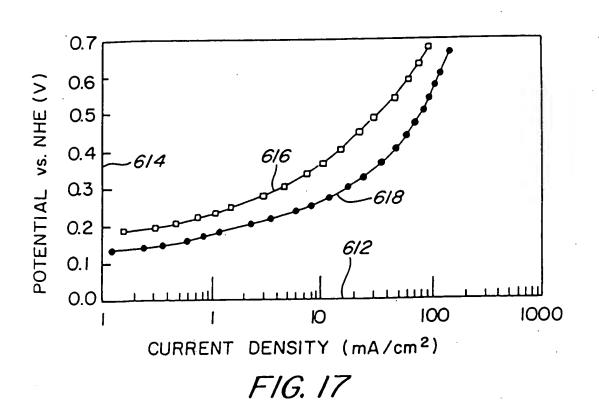


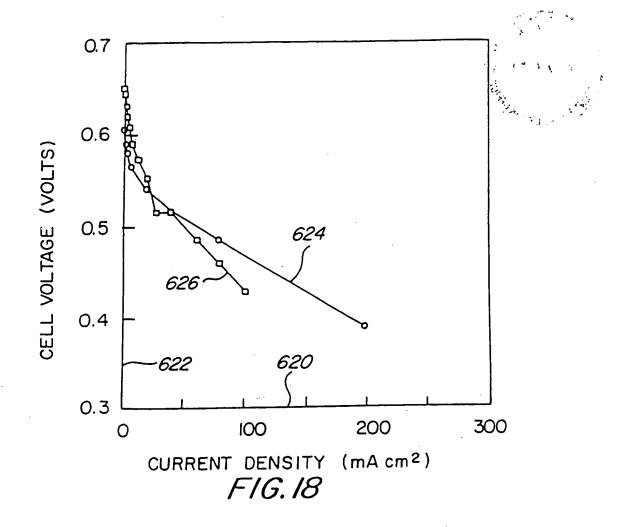


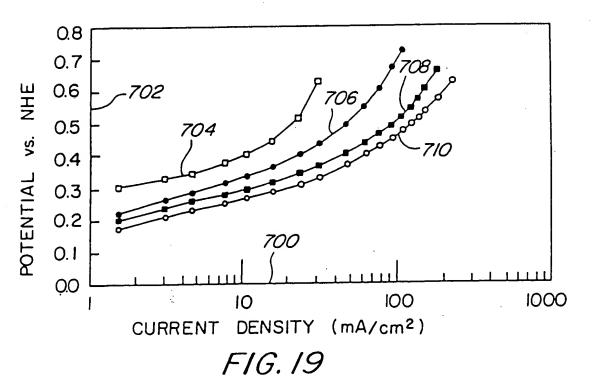












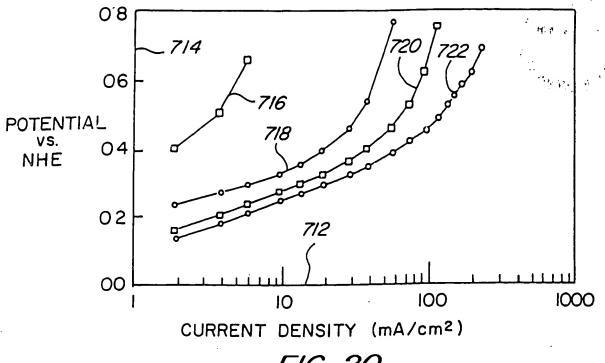


FIG. 20

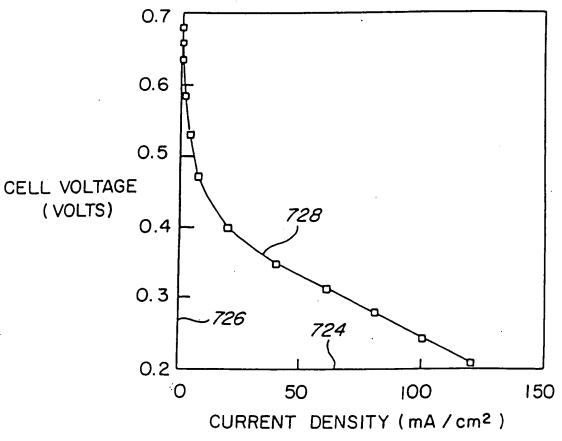


FIG. 21